

City of Det. Plan of ~~Objection~~
13-53846

The purpose of recycling should be to
reduce volume of trash going into landfill
and to segregate ~~the~~ and to segregate
dioxins to be ~~separated~~ from regular
waste stream
of material

Recycling is secondary to public health
& reduction in landfill costs.

Recycling should be promoted for
these points not just paper

Lawrence J. Dand

FILED

2014 JUL 11 P 4: 05

U.S. BANKRUPTCY
E.D. MICHIGAN-DETROIT

Down 5 buildings, one which tax payers
just paid \$53 million dollars to build
less than 15 years ago, the children's jail.
This truly is a continuation of and speed up
of a plan of mal adjustment which started
long before bankruptcy, but has accelerated
since the City B.

The mafia and company beginning under
(mayor) Archer (who ^{helped} arranged the Swamp Land sale)
started wasting money with retention ponds that
continue to overflow sewage and pollute the
river and Lake Erie. Over 4 billion has been
spent even after the first one in River Rouge
was shown to be a failure. The profiteers
the contractors, said continue on. The 30
million ppl. + in Toledo use storm water ditches
that do work. The oldest technology was
recently contracted for with WEFCO, even

At a community meeting yesterday ^{at Plymouth Congregational Church}
7/10/14, ^{an} incinerator rep. told me this was
not an incinerator, and ~~that~~ the presentation
was about them building a drag house to
stop the smell.

I said we need to stop the release
of toxins in the air... only cooling the exhaust
injecting carbon particles and trapping them in
a screen to be taken to a toxic lined land
fill will ~~stop~~ ^{trap} catch droplets and fumes.

~~Also~~ I asked them to shut it down until
they make improvements to come in line with
EPA ^{not just} ~~just~~ Michigan standards which are lower.

they are also creating the unhealthy emissions from the Russian owned steel processing plants and the oil sands emissions from Marathon Oil, and others emissions I don't know about yet.

The National Academy of Scientists have documented that waste incinerators will produce polychlorinated toxins, i.e. dioxins and furans as a matter of course during Waste Incineration. The day before my appearance in court on July 18, I visited the head of DPW, the incinerator on W. Ferry, the new Pantranch Recycling Center and the old DPW yard on Southfield Service Drive near the Jeffries that was taken over by Advanced Disposal Systems. The ~~general~~ guard at the incinerator said I would have to make an appointment with the management, but had no phone number for me to call; I left a note with him to pass on asking for an appointment, but have not received an answer. The guard also added that garbage from the suburbs was coming here

and they were paying \$25. a ton for incineration. Earlier in the day the cities DPW director, Brundage, told me to go on line to get in touch with the incinerator. I had complained to him that both Rizzo and Advanced Disposal had posted the exact same directions on their websites on how to recycle ... "Do not put plastic garbage bags in your recycle container."

This flyer was posted in May, and a friend, Anna Holden, a Sierra Club Leader, had forwarded to me. After I talked to the DPW ~~Mass~~ director, I could no longer find that statement on line or in their literature...

~~(Detroit DPW)~~ It's clean as a whistle now. At recycle here I talked with Matt, who explained that the dump sites, Anthon, and others, do not recycle plastic bags, styrofoam, or aseptic containers... so when I pick up the street garbage on the corner of Peterboro & 2nd. I take the plastic bags styrofoam & aseptic containers and sort them at Holden Recycle here and the rest, mainly plastics ~~are~~ unsorted to Anthon.

The EM should break the contracts between the DDA and the city that allows the DDA to keep all of the Wayne Co. and City portion of Wayne County Property Tax in the downtown money pot instead of letting it go into the general fund. I object to the Plan to pay the DDA over \$130 for some ~~debt~~ loan on the people mover and Colo. The main beneficiary of the People Mover is the DDA business owners and the DDA is keeping the property tax and for years they used police & fire without compensating the city. If anything, DDA owes the city.

I object to this ~~lack~~ ^{inadequacy} of representation of our interests as citizens by Orr and Jones Day in the bankruptcy proceedings and in his EM role of restructuring the city outside of bankruptcy court. He has failed & should be removed.

billionaires and like Illich, Gilbert, Anthony
Soave, Matty Maroon, DTE, and those
profiting off the Downtown Development
Authority, The Detroit Wayne County Building
Authority, The Parking Authority, The
Detroit Wayne County Building Authority,
The Public Lighting Authority, the
Whitening of Belle Isle, Joe Louis Arena and
Parking Authority, The Detroit Land Bank
Authority. This is restructuring? This
is colonialism, the taking of assets
of Detroit residents, the taking of their
Belle Isle, Joe Louis Arena, the abandon-
ment of ~~the~~ people, the push to push
the current residents unless they have
money to the outskirts of Detroit to
bring in new moneyed people that don't
mind being poisoned by the incinerator.

The knolly folly is a waste of money and will require the city to help after MDT 7 year commitment is over. This going to no where, while the people wait for hours and find it hard to get to a job on time for lack of an adequate bus service.

The Aerospace School was moved out of City Airport to Delighty School. Now a fire station took that school's place.

~~Delighty School~~ Reids Launch Ramps and a marina are leased by the State to a tow truck company owner, instead of to someone experienced in marina management, another sweet heart deal for the few.



Zero Waste Detroit

Changes in Detroit's waste collection on **westside**:

- **Begins June 2.** All new trucks, using compressed natural gas, will service the area. Trucks will be quiet—**NO truck noise to remind you it is pickup day! For all collections, they have to be at the curb by 7 AM, or late evening before.**
- If garbage cart needs repair, call Advanced Disposal: 233-8764 or 844 2-DETROIT. If no garbage cart, or it is damaged beyond repair, the fee is \$20.
- **Recycling**
 - **Recycling pickup same day as garbage, every other week.** If you currently have curbside recycling, it will continue—the only change is that pickup will be **every other week, instead of twice/month.**
 - If you currently do not have curbside recycling, the recycling program will be "opt-in" with a \$25 one-time fee—you will receive a 64-gal recycling cart, beginning this fall.
 - Residents can "opt-in" to recycling any time: 233-8764; 844-2-Detroit
 - Advanced Disposal offers Reward\$ for Recycling, free coupons for 10%-50% discount at over 1000 businesses locally. Contact Advanced Disposal to enroll.
 - **Do NOT put recycling into the garbage containers.** Recycling earns revenue for the City: the more residents recycle, the more the City gains.
 - **Absolutely NO plastic bags** in recycling! Place items, unsorted, directly into the recycling cart.
- **Yard waste and Bulk: the day after garbage every other week**
 - **NO plastic bags** for yard waste.
 - Bulk waste: limit of 1 cubic yard per pickup.

Contact Advanced Disposal: phone 822-2-Detroit (233-8764)

Email: DetroitMIResidential@AdvancedDisposal.com

www.AdvancedDisposal.com/DetroitResidential

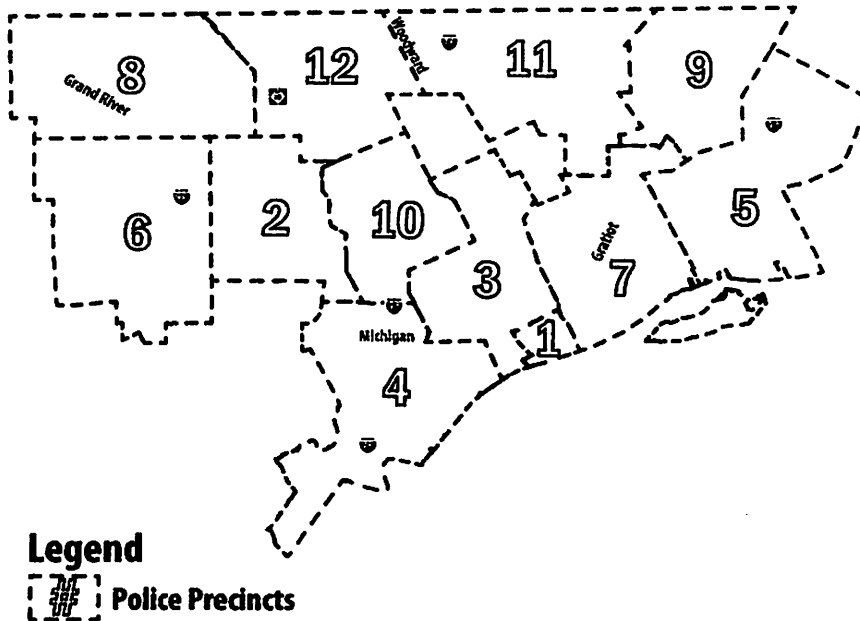
Search for your service days and collection guidelines

For additional Information: www.zerowastedetroit.org or Zero Waste Detroit on Facebook

May 2014

Safety

Police Precincts



District 6: Neighborhood Police Officer (NPO) Contact List

1st Precinct

NPO Tamyra Harris ph# 570-4364

2nd Precinct

NPO Collette Burks-Weathers ph# 600-5756

NPO Yolanda Sharpe ph# 573-0377

NPO Keba Rhone-Abney ph# 590-6611

3rd Precinct

NPO Munoz Gilbert ph# 643-0897

NPO Thomas Carrie ph# 643-0842

NPO Dale Dorsey ph# 643-0865

4th Precinct

NPO Lebron Juan ph# 643-0354

NPO Alfonso Ruiz ph# 618-1695

NPO Thomas Denmark ph# 643-0225

10th Precinct

NPO Della Brown ph# 614-9440

NPO Melvin Chunev ph# 573-4109

NPO Roberto Berry ph# 618-0793

Purchasing a Vacant Side Lot

Who owns the vacant side lot next to or near my home?

Contact the Detroit Land Bank Authority (DLBA):

Contact Richard Cannon
rcannon@detroitlandbank.org

YES

Residents must show that they live next to the lot, and provide a certified check for \$100 to the DLBA

NO

Contact the City of Detroit's Real Estate Division:

(313) 224-4032 or (313) 224-9254

Online:

<https://is.bsasoftware.com/bsa.is/AssessingServices/ServiceAssessingSearch.aspx?i=1&appid=0&unit=155>

YES

Fill out application to purchase the vacant lot
City of Detroit's Real Estate Division:
65 Cadillac Square Suite 2000, Detroit, MI 48226

NO

To Find the Property Owner:
Coleman A. Young Municipal Center
2 Woodward Avenue - Suite 120
Detroit, Michigan 48226
(313) 224-3560



Detroit Renewable Power

- According to 2008 EPA data, DRP is the 5th highest emitter of nitrogen oxides (NOx) in Wayne County, an essential ingredient of ozone. Currently Wayne County is in non-attainment for ozone, and ozone is a major contributor to asthma. A disease for which rates of hospitalization in Detroit are three times higher than that of Michigan as a whole.ⁱ
- Detroit Renewable Power (DRP) contributes to a poor quality of life for those living around the facility. Foul odors prevent residents from enjoying the outdoors during the warmer months. Since DRP took over ownership of the facility in 2010, complaints of foul odors to MDEQ have increased precipitously. From only 3-4 complaints to MDEQ under the previous owner Covanta Energy in 2008-9, to complaints under the new owners DRP of 16 in 2010, 57 in 2011, and 119 in 2012.ⁱⁱ
- This high frequency of complaints to MDEQ's Air Quality Division has resulted in DRP receiving 9 odor violations of Rule 901 in 2011-13. Currently Detroit Renewable Power (DRP) is out of compliance with Rule 901 (901 violation is for emitting air contaminants that cause an unreasonable interference in the comfortable enjoyment of life/property). These odor violations generally occur during the warm months of May through September.
- These odor violations are still unresolved with the Michigan Department of Environmental Quality.
- Due to these violations still being unresolved DRP cannot receive \$4.1 million in brownfield redevelopment tax credits awarded in 2011.
- According to 2008 EPA data, Detroit Renewable Power is ranked 7th highest in Wayne County for lead emissions, and 11th for mercury emission. Mercury is a neurotoxin that impairs motor, sensory, and cognitive functions, and lead exposure can contribute to neurological disorders in children.ⁱⁱⁱ
- Currently the city of Detroit recycles just under 7% of their waste. The remainder of materials, many of which are recyclable, are sent to Detroit Renewable Power to be burned.^{iv}
- Air-borne particles pose a major health hazard. Filters can remove the largest particles, but the greatest danger comes from ultra-fine particles, which cannot be filtered out, which can travel great distances, and which are dangerous if inhaled.^v

ⁱ Environmental Protection Agency. National Emissions Inventory. Version 3. 2008. <http://www.epa.gov/ttn/chief/net/2008inventory.html>

* Wasilevich EA, Lyon-Callo S, Rafferty A, Dombkowski K. "Detroit - The Epicenter of Asthma Burden". Epidemiology of Asthma in Michigan. Bureau of Epidemiology, Michigan Department of Community Health, 2008.

ⁱⁱ Michigan Department of Environmental Quality

ⁱⁱⁱ Environmental Protection Agency. National Emissions Inventory. Version 3. 2008. <http://www.epa.gov/ttn/chief/net/2008inventory.html>

* Thompson, Jeffrey, M.D. and Honor Anthony, M.D. The Health Effects of Waste Incinerators: 4th Report of the British Society for Ecological Medicine, 2nd edition, June 2008.

^{iv} Detroit Department of Public Works. 2012 Annual Recycling Report.

<http://www.detroitmi.gov/Portals/0/docs/publicworks/Recycling/DPW2012AnnualRecyclingReport121812.pdf>

^v Environmental Protection Agency. Integrated Science Assessment for Particulate Matter. Final Report. Chapter 3, "Source to Human Exposure." Online, Dec. 2009.

the driers won't work ^{well} without anaerobic
- digesters - the main ingredient for success.

The new owners of the incinerator are
poisoning the population that is still here
now at a faster rate, but the dioxins &
furans attach to the fly ash (light) ~~and~~
as the burned chlorine compounds cool
and they go everywhere, affecting the air,
land, food & water. Currently they are investing
5 million dollars to stop odor, but if
they don't stop emitting toxins, that ~~is~~
may or may not have odor, what good is it?
They say they are meeting Michigan Dept of Environment
Quality, but Michigan standards do not meet
EPA enforced standards.

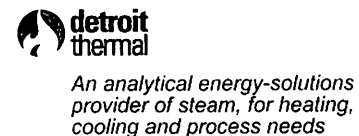
Please cancel the 2010 contract
guaranteeing that Detroit will deliver
garbage to incinerator until 2021.

Our Companies

www.detroitrenewable.com



Detroit Renewable Energy (DRE) is helping to renew Detroit. Our companies are committed to providing safe, reliable, and affordable municipal solid waste solutions; generating and distributing clean, renewable energy; and contributing to the revitalization of Detroit with long-term investments in communities, education, and people.



HAMTRAMCK ENERGY SERVICES

Operations, maintenance and management of clean energy/wastewater services for 7 GM powerhouses – 2 with chilled water plants, as well as energy management services for Fannie Mae's Washington, D.C. data center

Offers a proven track record for reliability, safety, and environmental stewardship

Generates large material cost savings for clients by:

- Reducing utility costs through improved efficiency
- Reducing/eliminating downtime through improved reliability
- Eliminating labor costs through use of in-house staff

Experience & capabilities to serve:

- Industrial & manufacturing facilities
- Steel industry
- Pulp and paper mills
- Healthcare facilities and hospitals
- University campuses
- Airports & convention centers
- Municipal buildings and campuses

DETROIT RENEWABLE COOLING

District energy that will supply reliable, cost-effective cooling and air conditioning for Detroit buildings

DETROIT THERMAL

Renewable energy-based steam for heating and cooling 140+ Detroit buildings via an extensive downtown steam network:

Provides analysis-driven heating and cooling solutions designed to meet specific needs

Helps customers eliminate capital investments and re-allocate labor to core functions

Allows building owners to greatly reduce/eliminate their carbon footprint

DETROIT RENEWABLE POWER

Integrated energy-from-waste (EFW) facility providing:

Safe municipal solid waste (MSW) disposal

- Up to 3,300 tons per day of municipal waste from Detroit and surrounding cities
- Enough electric power to supply 60,000 homes year round

Materials recycling

- Recovers and commercially recycles 39,000 tons of metals per year

Clean, renewable energy

- Reducing area greenhouse gas emissions by delivering:

Electricity to DTE Energy that displaces 84,000 tons of coal

Steam to Detroit Thermal that displaces 4 million cubic feet of natural gas

Our Companies

www.detroitrenewable.com



Atlas Holdings

www.atlasholdingsllc.com

- Detroit Renewable Energy is part of the Greenwich, CT-based Atlas Holdings LLC family of companies.
- Atlas Holdings is an industrial holding company with operations in the United States, Canada, Europe and Asia, encompassing more than 70 facilities and employing approximately 8,000 people.
- In Michigan, Atlas successfully managed the turnaround of Michigan Seamless Tube – bankrupt when purchased by Atlas and now a thriving company.

Clean, Renewable Energy

- The U.S. EPA and DOE, as well as Michigan, D.C., and 22 other states, consider energy from waste a renewable energy source.
- One ton of municipal solid waste displaces the energy equivalent of a barrel of oil or ¼ ton of coal.
- More than 75 EFW plants now operate in the U.S., approximately 400 in the EU and 200 in Asia.
 - The U.S. receives less than 14 percent of its energy from waste.
 - Denmark receives 54 percent of its energy from waste.
- More than 1,000 global cities use EFW to heat and cool commercial buildings
- EFW environmental benefits include:
 - Reduced greenhouse gases
 - Reduced dependence on fossil fuels
 - Reduced landfilling
 - Reduced truck traffic and associated emissions
 - Recovered and recycled metals (reducing new metals mining impacts)
- EFW improves local recycling: U.S. communities with EFW plants average recycling rates of more than 33 percent compared to the national average of 28.5 percent.
- Detroit Renewable Power operates in full compliance with all applicable federal, state and local environmental rules and regulations.

Global Support, Local Focus

EFW facilities "...produce electricity with less environmental impact than almost any other source of electricity."

(U.S. EPA)

The (Detroit Renewable Power) facility is "...as clean as the best [EFW facilities] in the world..."

(Dr. Nick Themelis, Columbia University)

DRE's community initiatives:

- Annual Sustainability Report – DRE produces an annual transparent review of its contributions to Detroit's environmental, social, and employee health, as well as prosperity.
- Golightly Education Center – In 2013, DRE formed a partnership with the Golightly Education Center to develop an experiential learning program to teach students about science and technology through experiments, field trips and hands-on learning.
- Downtown Detroit Partnership – DRE is an active board-level participant in this private/public partnership supporting a clean and economically strong Detroit community.

Investing in Detroit

- DRE's investment in Detroit has helped support a steady resurgence in the City's ability to ensure efficient, sustainable, and long-term energy, environmental, and public works services.
 - In November 2010 DRE invested \$50mm in acquiring the DT, DRP, and HES businesses.
 - Total capital investments to improve DRE facilities exceed \$60 million since 2010.
 - DRE immediately brought back 122 laid-off DRP workers in 2010 and today supports a Detroit workforce of 161.
- In addition to providing key Detroit businesses such as Ford Field, Detroit Medical Center, GM Renaissance Center, Cobo Center, Fox Theater and Henry Ford Health Systems with renewable-energy-derived steam, DRE has driven new commercial activity since 2010, attracting to the system customers that include:

Wayne State University • U-Haul Corporation • Blue Cross Blue Shield • Detroit Public Safety Headquarters • Woodward Gardens

Renewable Energy

Energy-from-waste projects are a source of renewable energy



As Detroit continues its resurgence, demand for energy by its residents and businesses will grow, as will the need to reduce the city's carbon footprint. Meeting these competing needs in a safe, environmentally friendly manner is our mission at Detroit Renewable Energy. By converting Detroit's solid waste into electricity and steam we're delivering a solution to two of Detroit's most pressing needs: a renewable, non-depletable source of clean energy and a responsible method of waste management.



Energy-from-waste is a renewable energy source because its fuel – municipal solid waste (pictured above) – is sustainable and non-depletable.

What is renewable energy?

Renewable energy is defined by the U.S. Energy Information Administration as **an energy source that is regenerative or virtually inexhaustible**². In just a single week, the City of Detroit collects about 1,500 fully loaded garbage trucks worth of trash. Our facility's refuse-derived fuel technology not only squeezes energy from up to 3,300 tons of this waste every day, it reduces the city's dependence on landfills and provides a resource for clean, renewable energy. After waste is combusted, the **waste volume has been reduced by almost 90%** to an inert ash residue, safely and dramatically reducing Detroit's dependence on traditional landfill capacity.

Municipal solid waste has long been established as a renewable fuel and energy-from-waste has full renewable status under a number of U.S. statutes, regulations, and federal Executive Orders³.

The U.S. EPA and Department of Energy both recognize energy-from-waste as a renewable energy source along with the Energy Policy Act of 2005, the Federal Power Act, the Public Utility Regulatory Policies Act, Federal Energy regulatory Commission regulations, and the Biomass Research and Development Act of 2000, along with 24 states in the U.S., including Michigan and the District of Columbia.

WHAT IS BIOMASS?

- About **85%** of household trash is material that will burn, and most of that material is made from biomass¹.
- Municipal solid waste contains biomass materials like paper, cardboard, food scraps, grass clippings, leaves, wood, and leather products, and other non-biomass combustible material.
- Biomass is a renewable energy source because we can always grow more trees and crops, and waste will always exist¹.

¹ US Energy Information Administration http://www.eia.doe.gov/energyexplained/index.cfm?page=biomass_home

² US Environmental Protection Agency <http://www.epa.gov/osw/hazard/wastemin/minimize/energyrec/renew.htm>

³ Michaels, Ted, "The 2010 ERC Directory of Waste-to-Energy Plants" Energy Recovery Council. December 2010. http://www.wte.org/userfiles/file/ERC_2010_Directory.pdf

If you have questions about this fact sheet or for more information, please contact:

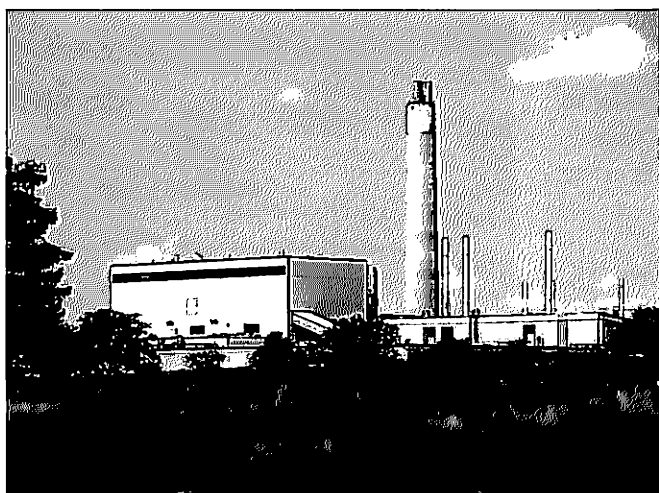
Alan Greenberg 313-972-4639
www.detroitrenewable.com

How It Works

Energy-from-waste is an efficient renewable energy solution



Detroit Renewable Power is a modern energy-from-waste (EFW) facility – a power plant – that combusts Municipal Solid Waste in a highly controlled and efficient combustion system that recovers energy from the combustion process. DRP's facility is equipped with acid gas scrubber/fabric filter air emission control systems, which are proven technologies to minimize emissions. Modern EFW facilities such as DRP work very differently from old-fashioned municipal "incinerators" that burned trash inefficiently, had minimal (if any) air emission control systems, produced smoke, and did not recover any of the energy released during the combustion process. Our EFW facility produces steam and electricity that reduces burdens on landfills, recycles waste metals, doesn't smoke, and cuts greenhouse gas emissions.



The energy-from-waste process at DRP is clean, safe, and efficient.

What is a Refuse-Derived Fuel Facility?

DRP is a Refuse-Derived Fuel (RDF) facility. RDF plants process municipal solid waste before it is combusted into a uniform fuel. A typical RDF plant will remove and recycle metals and remove other undesirable materials that people discard, such as automobile batteries and BBQ grill propane tanks. The remaining solid waste is then sorted and shredded into smaller pieces for combustion. RDF plants perform more sorting and handling than mass burn facilities, and DRP efficiently recovers recyclables and removes potentially environmentally harmful materials prior to combustion. DRP was designed as an RDF facility with technology incorporated to process incoming waste prior to combustion, improving its energy recovery efficiency.

The energy-from-waste process at DRP is **clean, safe, and efficient.**

What goes in on a typical day?

Trucks deliver up to 3,300 tons per day of municipal solid waste from Detroit and surrounding cities.

WHAT IS PRODUCED?

Clean, renewable energy – up to 68 megawatts of electricity.

- Enough electric power to supply 60,000 homes year round.
- Each of three boilers is capable of delivering **362,800 pounds of recovered steam** per hour for district energy and electricity.
- Steam that heats **more than 140 commercial and private customers** in downtown and midtown Detroit via an underground steam-distribution system provided by Detroit Thermal.

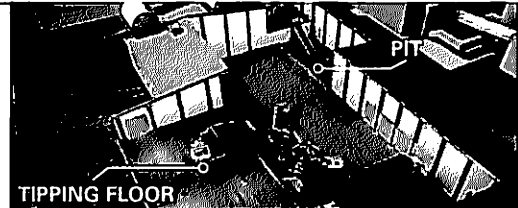
If you have questions about this fact sheet or for more information, please contact:

Alan Greenberg 313-972-4639
www.detroitrenewable.com

The Energy-From-Waste Process

1

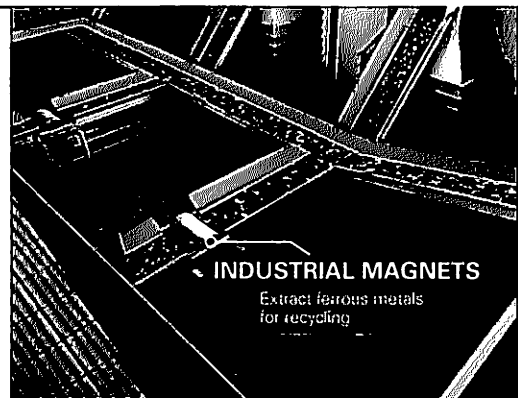
Trucks deliver municipal solid waste throughout the work week, with a reduced delivery schedule on Saturdays. After weighing and preliminary screening, we deposit the waste in a fully enclosed receiving area. Trained workers use front-end loaders and excavators to sort and recycle oversized and other unacceptable material before feeding the waste onto continuous belt conveyors.



2

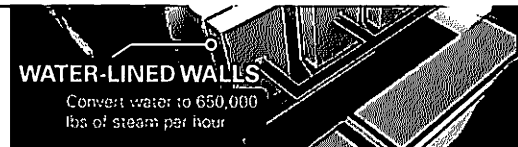
The facility then prepares the waste via a series of conveyers and shredders.

- These conveyors feed the waste through massive primary shredders, where we reduce the material in size to prepare for its use as fuel.
- After the primary shredders, we use industrial magnets to extract ferrous metal from the waste stream for recycling.
- A secondary shredding process then further reduces the waste material to a consistently sized, readily handled fuel stream, which we then feed into one of three specially designed waterwall-lined furnaces.



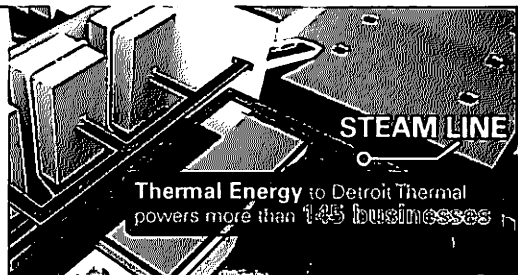
3

As the fuel is moved through the furnaces by horizontal traveling grate stoker systems, it thoroughly combusts at temperatures consistently exceeding 1,800 degrees. Demineralized water in the waterwalls is converted to up to 362,800 pounds of steam each hour in each boiler.



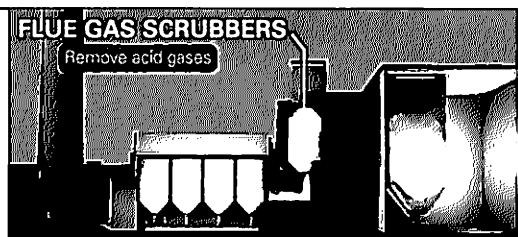
4

Most of the steam is delivered to more than 140 Detroit buildings through a major city steam loop operated by DRP's sister company, Detroit Thermal. Some of the steam drives a turbine generator system and produces up to 68 megawatts of electricity. DTE Energy receives the majority of this renewable electricity for distribution to the electricity grid for use in the Greater Detroit area. DRP also uses the electricity it generates to run the plant – about 9 megawatts are required to operate the facility each day.



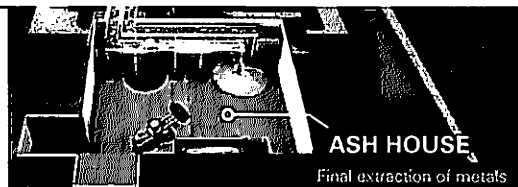
5

Using state-of-the-art flue gas scrubbers and fabric filters, we thoroughly clean the combustion gases passing through our furnaces after energy recovery. We carefully combine the fly ash from these systems with ash residue from the combustion process, landfilling only about 10% of the incoming waste's original volume and dramatically reducing Detroit's dependence on traditional landfill capacity.



6

Finally, optimizing our energy and material recycling, we separate both fine ferrous and non-ferrous metals from this ash residue stream – returning to commerce between approximately 25,000 and 30,000 tons of metal every year.



What is the Plume?

The visible plume is liquid water droplets



Detroit Renewable Power is a modern energy-from-waste (EFW) facility that combusts Municipal Solid Waste in a highly controlled and efficient combustion system that produces renewable energy in the form of steam and electricity. The visible plume, seen from the combustion stack on cold days, consists largely of liquid water droplets produced by the condensation of steam produced by the combustion process.



The plume is most commonly seen in the winter on cold days, when the invisible water vapor condenses into liquid water droplets.

What causes the plume?

The plume is the result of steam produced by the combustion process that has condensed into liquid water droplets after the steam has exited the stack and meets colder air. **The visible plume is liquid water droplets.** You can tell that the visible plume is the result of steam that has condensed into liquid water droplets because there is a clear section of air just above the top of the stack. This clear portion represents the part of the plume that is still steam, that is, the water molecules are still in a gaseous and invisible state and have not yet condensed into tiny, visible droplets of liquid water.

The plume that is sometimes visible from the large stack – the combustion stack – is liquid water droplets.

Why does the plume sometimes look dark?

When the sun is on the other side of the plume from the observer, part of the plume may look dark, even black.

This is a natural result of the sun causing the top of the plume to place a shadow on the bottom part of the plume.

HOW DO YOU KNOW WE ARE NOT SEEING PARTICULATE AND DUST EMITTING FROM THE STACK?

If the visible plume was filled with dust or particulate matter, the plume would be visible at the very top of the stack and with the same visible density as a little further downwind.

Because the emissions from the combustion stack are chiefly gaseous water, the air just above the stack is clear and only when it condenses to the liquid water droplets a little further downwind does the plume become visible.

If you have questions about this fact sheet or for more information, please contact:

Alan Greenberg 313-972-4639
www.detroitrenewable.com

Emissions Monitoring & Control

Energy-from-waste facilities meet emissions standards



Detroit Renewable Power (DRP) is dedicated to providing the City of Detroit with clean, renewable energy and environmentally responsible solid-waste management through its state-of-the-art energy-from-waste (EFW) facility.



DRP employee performing preventive maintenance on a greenhouse gas air flow monitor.

DRP's Air Quality Permit

The Michigan Air Quality Division (AQD) issued DRP a comprehensive and detailed air quality permit¹ in August 2011, known as a Renewable Operating Permit (ROP). Under the ROP, emissions data for some air pollutants are measured continuously, each minute of each day of the year using a Continuous Emissions Monitoring System (CEMS). The emission limitations in the ROP are based on federal and State law. The emission limitations were designed to meet strict requirements and to protect public health. Third party contractors conduct stack tests for determining compliance every year for those air pollutants that are not directly monitored using a CEMS. Since 2010, when DRP acquired the facility, the **annual stack tests have shown perfect, 100% compliance with the emission limits found in the ROP** and, in fact, DRP typically operates well below these limits. The annual tests at DRP show measured levels that are at least 50% below the allowed emission limit for a majority of the pollutants.

DRP controls emissions through careful waste management, processing, and combustion practices. For example, by extracting metals from the waste stream for recycling, the amount of metals that are emitted during combustion are limited.

In addition, DRP controls emissions through specialized equipment including:

- **Dry sorbent lime injection systems** that introduce a lime slurry into the exhaust flue gases to control emissions of sulfur dioxide and other acid gases, dioxins and furans, and mercury.
- **Fabric filters** that remove dust and particulate by filtering exhaust gases through cylindrical bags.

HOW DOES DRP CONTROL EMISSIONS?

The heart of DRP's emissions control system is the operations control center, where highly trained control room operators maintain watch over the combustion process.

The operators carefully monitor the process to ensure that combustion of the processed **Municipal Solid Waste (MSW)** is complete, meaning that the waste is completely destroyed and maximum energy is extracted for the production of renewable energy in the form of steam and electricity. This ensures higher operational efficiency and limits pollutant emissions.

¹ http://www.deq.state.mi.us/aps/downloads/ROP/pub_ntce/M4148/M4148%20Final%208-19-11.pdf

If you have questions about this fact sheet or for more information, please contact:

Alan Greenberg 313-972-4639
www.detroitrenewable.com

How Are Emissions Monitored?

To test the effectiveness of the combustion process and the emissions control system, DRP is required to **annually test emissions** from its combustion stack and the waste processing facility's shredder stacks. In addition to the annual stack test, DRP operates a **Continuous Emissions Monitoring System (CEMS)** that continually measures emissions of carbon dioxide, sulfur dioxide, carbon monoxide, and nitrogen dioxide on an hourly basis. DRP also operates a **Continuous Opacity Monitoring System (COMS)** that measures visible emissions, minus water vapor, from the facility's stack.

On rare occasions, despite a goal of zero excess-emissions, DRP exceeds its hourly emission limit. Out of a total of 13,788 one-hour readings in 2013, the CEMS measured only 40 one-hour exceedances of the carbon monoxide emission limit and six one-hour exceedances of the nitrogen oxide limit.



DRP employee checking emission monitoring equipment in CEM trailer.

Unlike power plant fuels such as coal or natural gas, which exhibit consistent burning characteristics called "heating values", MSW is a fuel that can have widely varying heating values. Occasionally, the heating value of MSW changes quickly and DRP operators must respond by making modifications to the combustion process. The very low permit levels required in a one-hour time frame are sometimes difficult to consistently meet when the fuel source varies dramatically in heating value as a result of content and moisture. These temporary and infrequent exceedances are typically followed by emissions profiles that are in full compliance with the permit.

Advanced Odor Control Strategy

New procedures and modifications are underway to control odor



Detroit Renewable Power (DRP) is a modern energy-from-waste facility that processes up to 3,300 tons per day of municipal solid waste (MSW) and converts it into renewable energy in the forms of steam for commercial district heating/cooling and electricity for the regional power grid. Although DRP successfully operates in compliance with stringent environmental rules, the daily, year-round management of large quantities of MSW poses occasional challenges in controlling local waste odors. DRP engaged three consulting companies and an internationally known engineering firm¹ to help identify and implement additional steps for mitigating this nuisance.



A DRP employee inspects Refuse-Derived Fuel (RDF) as it moves through a furnace.

The DRP Process

DRP receives MSW in a dedicated building, from where it is moved onto conveyors and into industrial shredders that convert the MSW into Refuse Derived Fuel (RDF) – a uniformly sized combustible material. DRP temporarily holds the RDF in a storage building before conveying it up a gallery to one of the facility's three spreader stoker boilers, where it is used as fuel in generating renewable energy. The RDF storage building and conveyor gallery are the focal point for improvements in odor reduction strategies.

DRP'S ODOR REDUCTION STRATEGY

DRP is in the midst of a multi-year plant optimization program to regain the performance of the processing equipment and three boilers. These projects, when completed later in 2014, will reduce the generation of odors by minimizing the time that MSW and RDF are stored on-site.

DRP has determined that the facility can further reduce the potential for excess odors by better ventilating the RDF storage and conveyor gallery areas, while simultaneously collecting and transferring this ventilated air to the facility boilers as combustion air makeup. This destroys odors before they can be released to the atmosphere. This step will utilize the facility's three existing forced draft (FD) fans, which provide combustion air directly to the boilers. Exhaust air from both the RDF storage and gallery areas will be transferred directly to each FD fan intake. In addition, a balanced proportion of the combustion

air will be drawn from the 8th level of the Power House, where indoor air temperatures are greater than outdoor ambient temperatures. This combination of combustion air sources will help to improve combustion efficiency and reliability. Additionally, DRP will incorporate a negative pressurization ventilation scheme to control fresh air intake into the building areas, helping to minimize the escape of air and fugitive odors.

TIMELINE

DRP is fully committed to operating and maintaining the EFW facility in a responsible and environmentally sound manner. Processes are in place to maintain current odor controls as work on the facility progresses. We are confident that the measures now underway to control facility odors will result in an even more efficient, renewable energy operation.

¹ HDR Engineering, Inc.

If you have questions about this fact sheet or for more information, please contact:

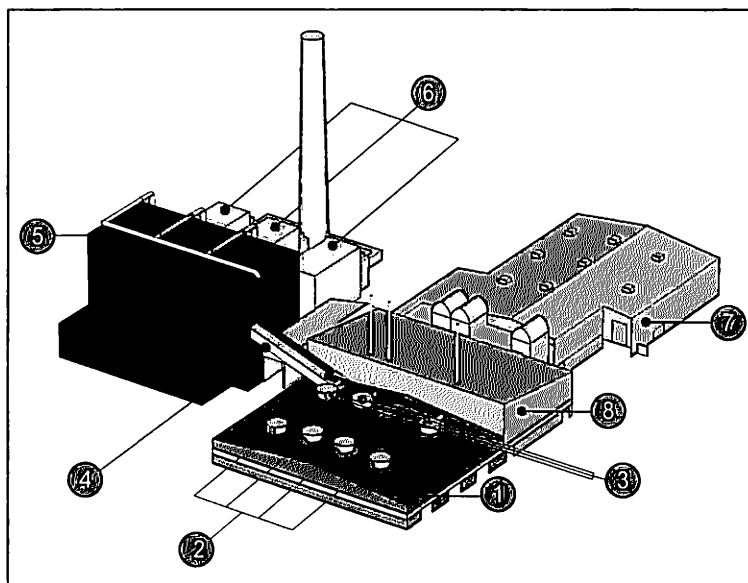
Alan Greenberg 313-972-4639
www.detroitrenewable.com

Odor Reduction Implementation

DRP's odor management efforts include specific new procedures and modifications.

In the RDF storage building:

- These conveyors feed the waste through massive primary shredders, where we reduce the material in size to prepare for its use as fuel.
- Roll doors will be closed during normal operations.
- Four new supply air fans will be installed on the roof of the RDF storage building to provide all necessary ventilation air.
- Control air dampers will be added to a select number of existing louvered wall openings to allow relief air to be drawn into the space by the negative pressurization generated by the FD fans. All other louver openings will remain closed.
- Dedicated roof-mounted exhaust air duct plenums will be installed on the roof of the RDF storage building to direct makeup air to the facility's FD fans.
- All existing roof-mounted exhaust fans will be removed and unused openings closed and made weatherproof.



(1) RDF Building
(2) New air supply fans
(3) New exhaust ducts
(4) RDF Gallery

(5) Boiler House
(6) Spray dryer/fabric filters
(7) MSW Building
(8) Processing

In the Power House RDF conveyor gallery and Power House:

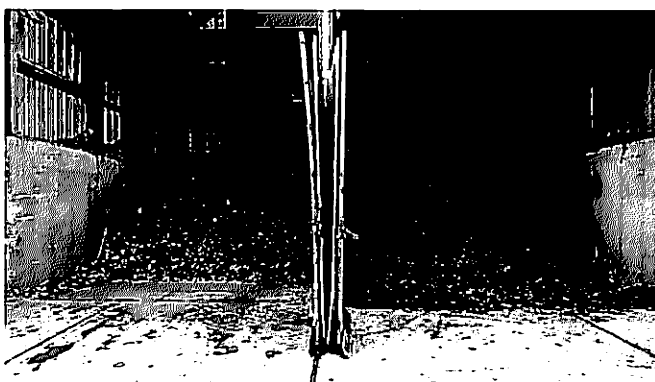
- New ventilation ducts will convey air from the RDF conveyor gallery area inlets to the new common exhaust plenum on the roof.
- An option is considered for installing three new dedicated centrifugal exhaust air forwarding fans to transfer the exhaust air from the RDF areas directly to each of the boiler FD fan inlets. This would only be necessary if the existing FD fans do not have sufficient pressure margin to draw air from the RDF areas.
- The addition of new air supply sources and strategically placed ductwork throughout the odor generating areas of the plant, along with changes in the design and function of the FD fans, will require integration with the instrumentation, control system hardware, and software elements of the facility's burner management and combustion control systems. This integration will automate the thorough combustion of the odors emanating from the RDF storage area.

Recycling

Energy-from-waste projects are fully compatible with recycling



Energy-from-waste (EFW) facilities worldwide have been shown to be complementary to efficient recycling programs and to reduce the overall environmental impacts of municipal waste management¹. Detroit Renewable Power's EFW facility is no exception, and we are committed to working with city leaders and community and business organizations to offer support for the development of a comprehensive curbside-recycling program.



DRP collects and recycles nonferrous metal (left bin) and ferrous metal (right bin) from the ash. Additional ferrous metal is separated and recycled from the MSW shortly after it is received and processed.

EFW & Recycling in Detroit

Detroit Renewable Power is Detroit's largest recycler, using highly regulated combustion technology to safely recycle municipal solid waste into renewable energy and recovered materials. In addition to renewable energy, each year Detroit Renewable Power recovers, recycles, and returns to commercial markets **more than 39,000 tons** (78 million pounds) of ferrous metals. Detroit Renewable Power also recovers thousands of tons of non-ferrous metals from the waste stream annually.

Communities with energy-from-waste plants have **higher recycling rates** than the national average.¹

Converting municipal solid waste into energy is a form of recycling - one made even more efficient if comprehensive curbside recycling takes place prior to combustion.

General Motors (GM) worked closely with a number of partners in Detroit, including DRP, to make the GM Renaissance Center landfill-free. The GM Renaissance Center now recycles, reuses or converts all its daily waste to energy.

EFW & RECYCLING WORLDWIDE

- Approximately **87 U.S. EFW facilities** recover and recycle **more than 700,000 tons** of ferrous metals each year.²
- The five European nations with the highest recycling rates — Germany, the Netherlands, Austria, Belgium, and Sweden — have among the highest EFW usage and have reduced landfill use to **less than 1 percent** of their waste.³
- Sweden (with a rate of recycling higher than 22 other European nations) actually competes to import waste.⁴

¹ Jonathan V.L. Kiser, "Recycling and Waste-to-Energy: The Ongoing Compatibility Success Story." MSW Magazine. May/June 2003.

² Werner Sunk and Nickolas J. Themelis, "Increasing the Quantity and Quality of Metals Recovered at Waste-to-Energy Facilities" 14th Annual North American Waste-to-Energy Conference. January 2006.

³ Ella Stengler "Recycling and Waste-to-Energy in Combination for Sustainable Waste Management" CEWEP. October 2012.

⁴ John Tagliabue "A City That Turns Garbage Into Energy Copes With a Shortage" New York Times. April 29, 2013.

If you have questions about this fact sheet or for more information, please contact:

Alan Greenberg 313-972-4639
www.detroitrenewable.com

The State should finance the ~~new~~ new bonds at ~~low~~ ^{a low} interest rate, instead of financing a stadium, trolley, etc. for billionaires.

The plan gives ^{financial} figures that show not enough detail to check their legitimacy. The contract with NEFCO for \$143 million on construction ~~was~~ ^{looks to be} increased to \$150 ^{million}. ... some more wasteful debt to sink DWSB, on technology that will continue to allow the truck haulers to the land fill and land fill owners to make money off of our sludge. The water dept. managed for the benefit of contractors not users; but now NEFCO et al (those receiving kickbacks) will get an additional $\frac{683}{540}$ \$540 million to operate the diers for 20 years.

And what did the city get for these
give aways that offer no revenue; well
Job Day will get over a \$100 million,
and the Alcks will continue to milk the
city. But the city children will probably not
get the opportunity to learn to swim ~~if~~
if the Salvation Army buys Liphe Recreation
Center to demolish the indoor pool for
an outdoor sprinkler system or wading ~~pool~~
pool, because the city did not have funds
that were instead paying for arenas, toy
trolleys to no where that we may find ourselves
paying for as we do for the people mover at
one million a year.

Where is the revenue supposed to come
from to keep us afloat? Gilbert and DDA
want the municipal courts moved to Inland
of Nevada. Would you like your bankruptcy or
Federal Court moved out of the municipal center
to Inland of Nevada? They propose tearing

The purpose of recycling should be to reduce volume of trash going into landfill and to segregate ~~the~~ and to segregate dioxins to be ~~to~~ toxins from regular waste stream.

Recycling ^{of material} is secondary to public health & reduction in landfill costs.

Recycling should be promoted for these points not just profit